

Pipe METRIC

						NEW	API PREMIUM
Pipe size	<i>in</i>	4.500	<i>mm</i>	114.3	OD <i>mm</i>	114.3	110.9
Pipe weight	<i>lb/ft</i>	16.60	<i>kg/m</i>	24.70	Thickness <i>mm</i>	8.6	6.8
Upset Type		IEU			X-Sec Area <i>cm²</i>	28.4	22.4
Tube grade		S135			Section Modulus <i>cm³</i>	70.0	54.8
Range		2			Polar Section Modulus <i>cm³</i>	140.0	109.7
Tube Yield	<i>MPa</i>	931			Tensile Yield <i>kdaN</i>	265	208
ID	<i>mm</i>	97.2			Torsional Yield <i>N-m</i>	75,200	59,000
					80% Torsional Yield <i>N-m</i>	60,200	47,200
					Internal Pressure Yield <i>MPa</i>	122.0	111.7
					Collapse Yield <i>MPa</i>	115.8	75.8
					D/t	13.35	16.19
					Connection/Tube Torsional Ratio	0.876	

Tool Joint METRIC

					NEW	REC MIN OD	
Connection Type		400 DUO		OD	mm	133.4	122.2
Material Yield Strength	MPa	896		Tensile Yield Strength	kdaN	409	409
	OD	mm	133.4	Torsional Yield Strength	N-m	65,900	44,300
	ID	mm	68.3	Recommended Makeup Torque	N-m	39,600	26,600
Pin Shoulder Angle	deg	18		Maximum Makeup Torque	N-m	42,800	28,900
Pin Tool Joint Length	mm	356					
Box Tool Joint Length	mm	356					

Drill Pipe Assembly METRIC

Shoulder-Shoulder Length	m	9.60
Adjusted Weight	kg/m	27.99
Closed End Displacement	L/m	10.57
Open End Displacement	L/m	3.57
Fluid Capacity	L/m	7.00
Drift Size	mm	65.1

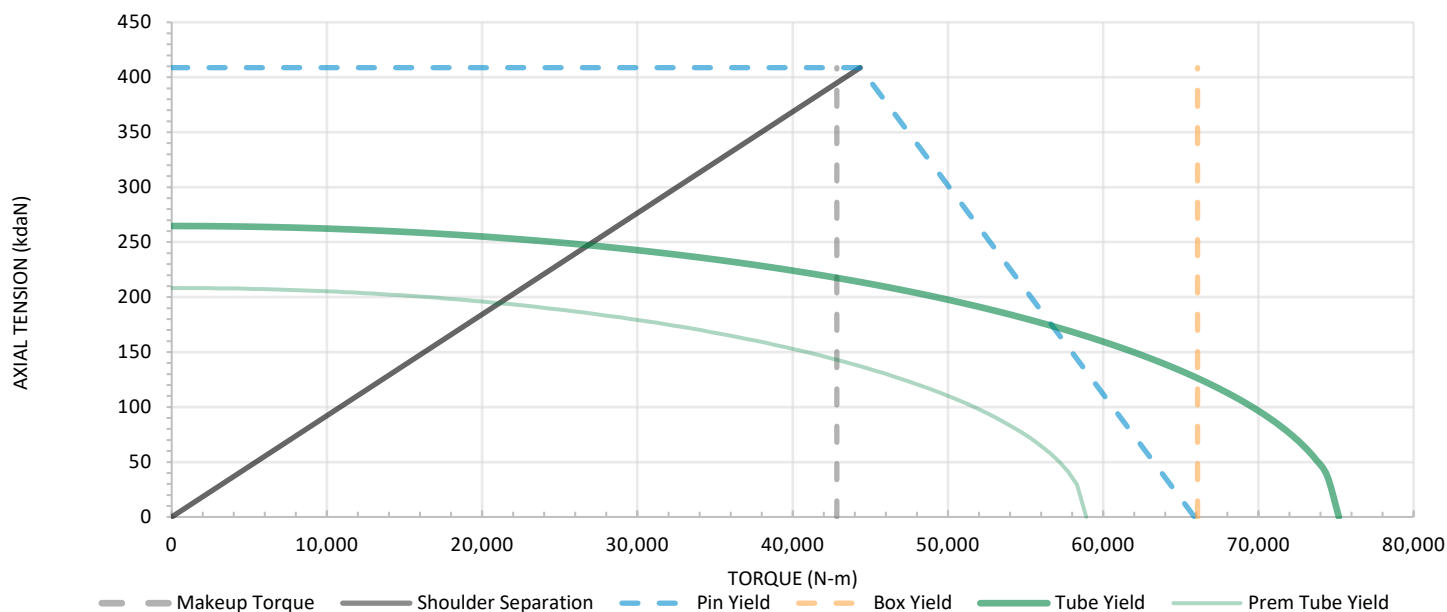
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Calculations are based on uniform wall thickness and outside diameter – no safety factor has been applied. The information provided for inspection classes is based on uniform wear and is not intended to recommend or confirm operational limits of any used product. It is recommended that drilling torque not exceed 80% of the makeup torque, however it is the responsibility of the end user to determine the acceptable use of the end product including appropriate performance ratings and safety factors where applicable. All connection torque calculations have been performed using a thread compound friction factor of 1.0. Complete Group does not endorse any specific thread compound and waives all responsibility in determining appropriate makeup torque values for any specific drilling circumstance. Modifying makeup torque values for any reason shall be done at the end users discretion and risk.

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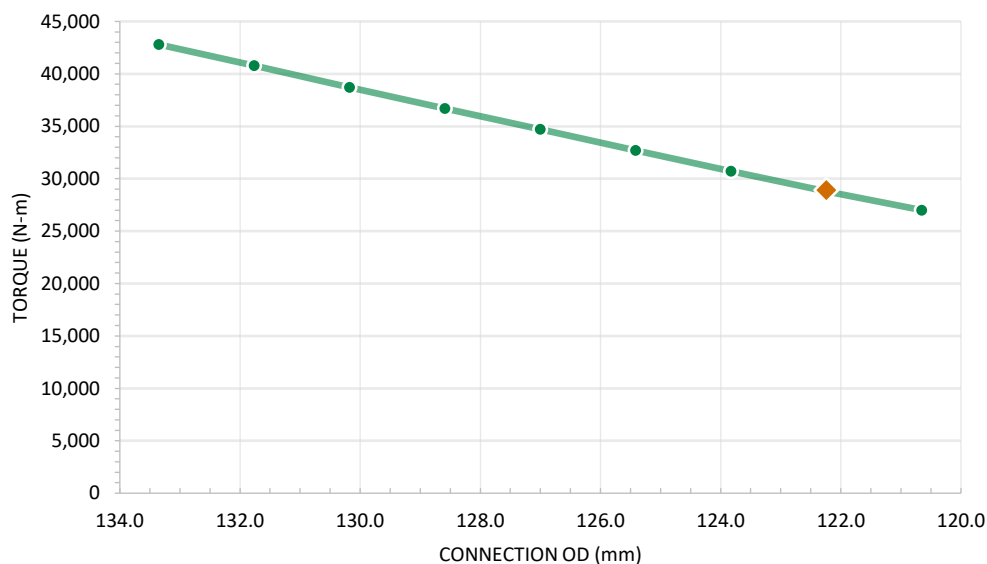
Makeup Torque Then Tension Chart

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Connection Wear Chart

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CONNECTION OD (mm)	MAXIMUM MAKEUP TORQUE (N-m)
133.4	42,800
131.8	40,800
130.2	38,700
128.6	36,700
127.0	34,700
125.4	32,700
123.8	30,700
122.2	28,800
120.7	27,000
MIN REC OD (mm)	
122.2	28,900

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